

Preliminary Foundation Recommendations
Bridge 4: I-75 Reversible Lanes over Windy Ridge Parkway
Northwest Corridor Project

GDOT Project No. NH000-0073-03(242), PI No. 714130
Cobb County, Georgia

WILLMER ENGINEERING INC.

Project No. ATL-171-3463BFI3

Document No.: ATL-171-3463BFI3-4

Revision: A

Issue Date: October 27, 2009

Document Status: Issued for Review

Prepared For

GEORGIA TRANSPORTATION PARTNERS

Atlanta, Georgia

Prepared By

WILLMER ENGINEERING INC.

3772 Pleasantdale Road

Suite 165

Atlanta, Georgia 30340-4270

770.939.0089

Preliminary Foundation Recommendations
Bridge 4: I-75 Reversible Lanes over Windy Ridge Parkway
Northwest Corridor Project

PWR AND AUGER REFUSAL ELEVATIONS (feet)			
Bent No.	Reference Boring No.	Top of PWR	Auger Refusal
1	BR-14	945.5	-
2	B-42	931	924
3	B-43	941	927
4	B-44	-	937.5
5	B-45	903	886
6	B-46	865.5	855
7	B-47	854	-
8	B-48	825.5	-
9	B-49	847	829
10	B-50	858	843
11	B-51	866	856
12	B-52	880	870
13	B-53	898	882
14	B-54	885	874

Preliminary Foundation Recommendations
Bridge 4: I-75 Reversible Lanes over Windy Ridge Parkway
Northwest Corridor Project

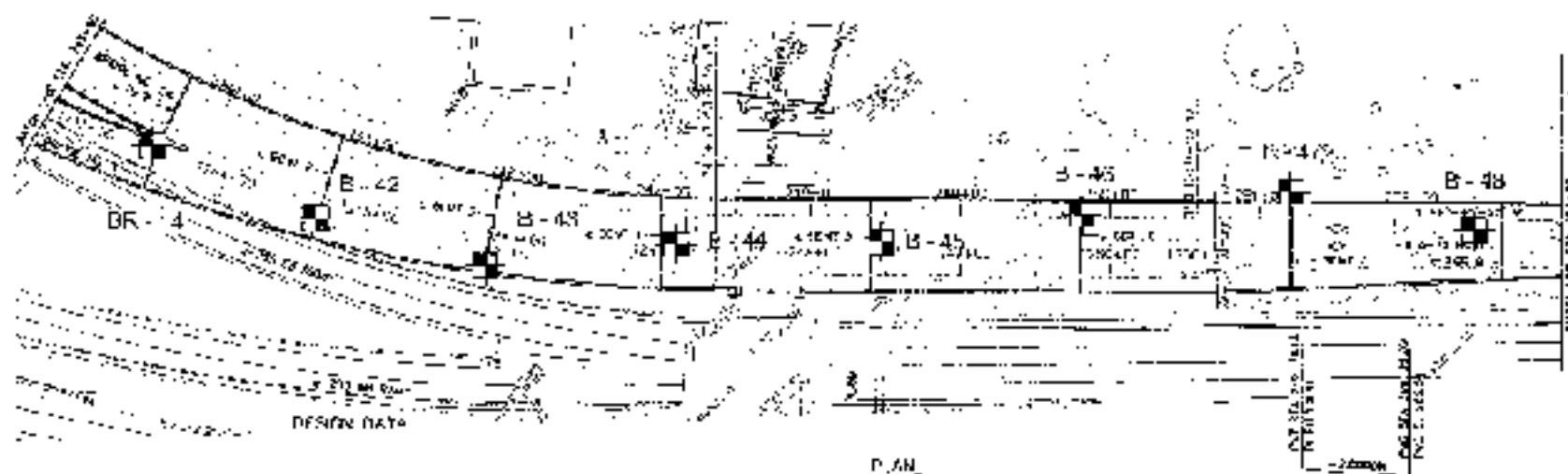
MAXIMUM PILE DESIGN LOADS			
Pile Type	Load Transfer (%)		Design Load
	Friction	End Bearing	
H-Piles	30	70	HP 10x42 = 55 Tons
			HP 12x53 = 70 Tons
			HP 14x73 = 96 Tons
			HP 14x89 = 117 Tons

Preliminary Foundation Recommendations
 Bridge 4: I-75 Reversible Lanes over Windy Ridge Parkway
 Northwest Corridor Project

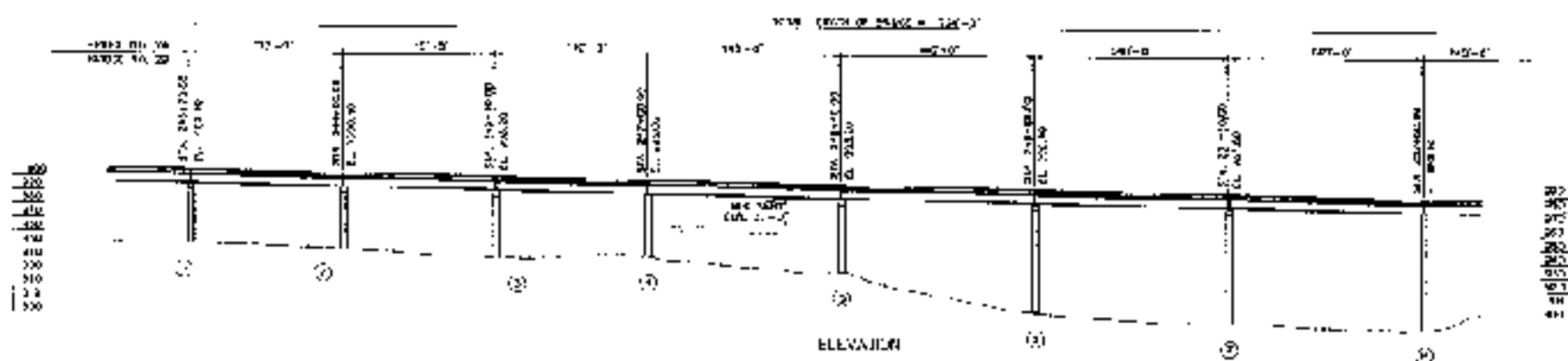
FOUNDATION RECOMMENDATIONS						
Bent No.	Drilled Shaft			Spread Footing (Bearing)	Pile Footing (Type)	Pile Bent (Type)
	Skin Friction (ksf)		End Bearing (ksf)			
	PWR	Rock				
1						H
2					H	
3				10 ksf on PWR		
4				20 ksf on rock		
5					H	
6					H	
7					H	
8					H	
9					H	
10					H	
11					H	
12					H	
13					H	
14						H

Preliminary Foundation Recommendations
 Bridge 4: I-75 Reversible Lanes over Windy Ridge Parkway
 Northwest Corridor Project


ELEVATIONS (feet)					
Bent No.	Reference Boring No.	Bottom of Drilled Shaft	Bottom of Spread Footing	H-Pile (ALT)	
				Minimum Tip	Estimated Tip
1	BR-14			939±	939±
2	B-42			930±	928±
3	B-43		936 or below		
4	B-44		937 or below		
5	B-45			902±	900±
6	B-46			864±	862±
7	B-47			853±	851±
8	B-48			834±	832±
9	B-49			846±	844±
10	B-50			857±	855±
11	B-51			865±	863±
12	B-52			879±	877±
13	B-53			895±	893±
14	B-54			885±	883±



GRADE DATA
1" = 10'-0"



LEGEND:

 BORING LOCATION
B-42

NOTE: K-105E PLAN AND PRICE LISTED BY GEOORGIA TRANSPORTATION PARTNERS

SHEET 11 OF 12

DATE: 1/20/2020

DRAWN BY: CH

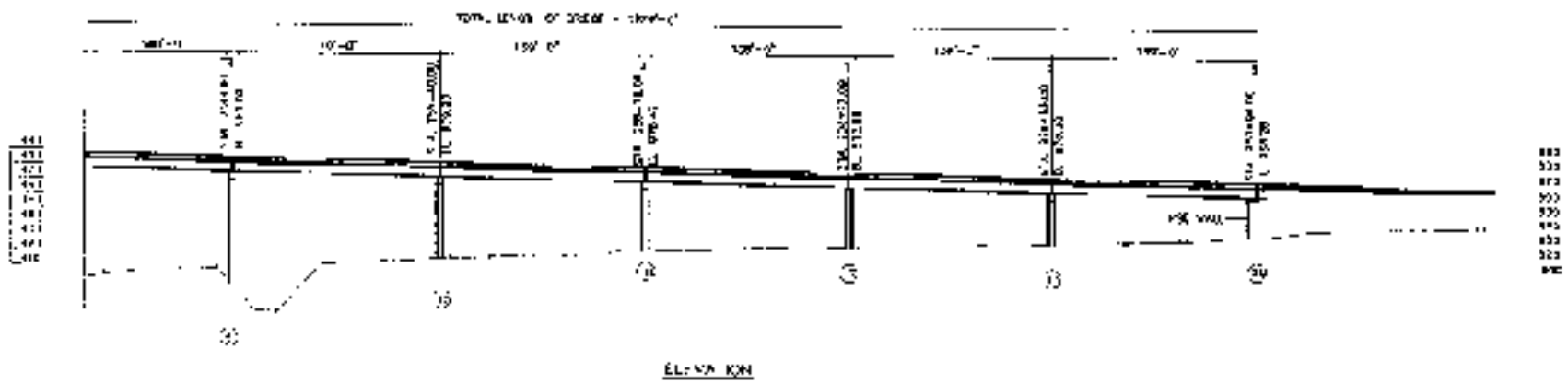
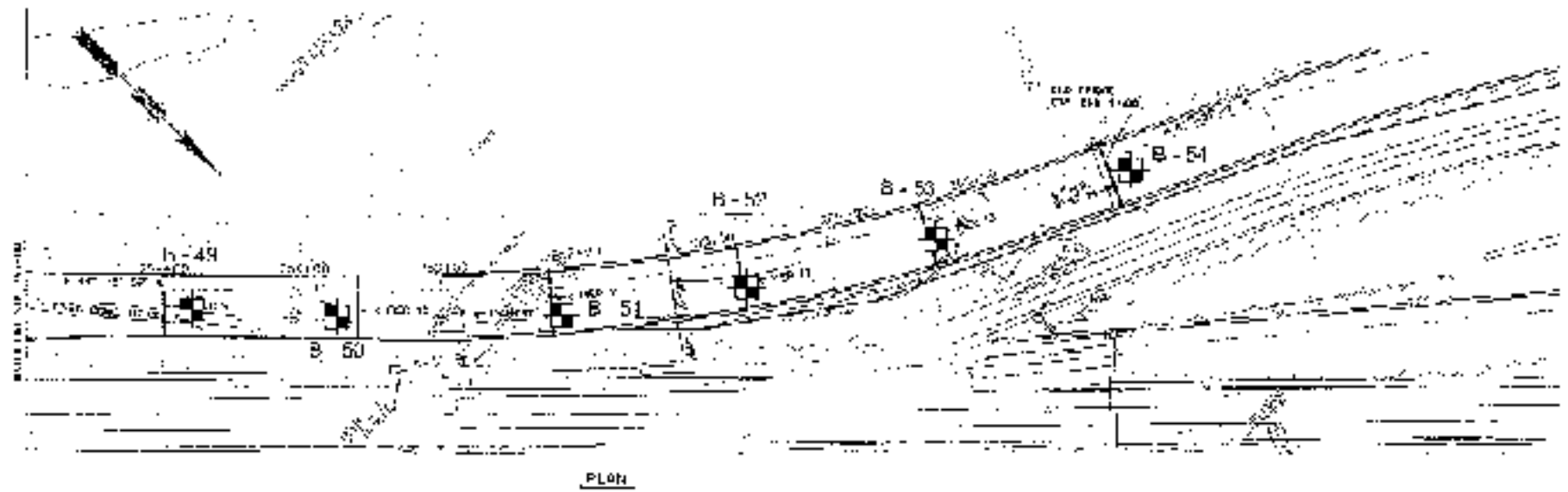
REVIEWED BY: MC

WE

FOR: K-105E PLAN AND PRICE LISTED BY GEOORGIA TRANSPORTATION PARTNERS
K-105E PLAN AND PRICE LISTED BY GEOORGIA TRANSPORTATION PARTNERS
K-105E PLAN AND PRICE LISTED BY GEOORGIA TRANSPORTATION PARTNERS

GOOD PROJECT NUMBER:
MH0000073-03-213
PI No. 1-1100

FIGURE 1 (B-102) OF 2
BORING LOCATION PLAN
FOR K-105E PLAN OVER WINDY HILLS ROAD
NORTHWEST CORRIDOR ROUTE 405
GOOD COUNTY, GEORGIA
WILLIAM PROJECT No. 171-0403



1. BORING LOCATION



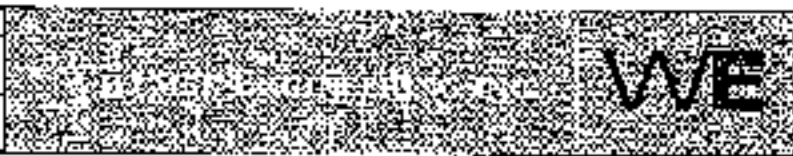
BORING LOCATION

B-49

NOTE: BORING PLAN AND PROFILE PROVIDED BY GEORGIA TRANSPORTATION DEPARTMENT

GEOT PROJECT NUMBER
NH003-0075-33(2/21)
PLAN 7-4135

SCALE: 1" = 20'
DATE: 10/22/2009
DRAWN BY: J
CHECKED BY: JAK



GEOTECHNICAL ENGINEERING, INC.
1000 N. W. 10th Ave., Suite 100
Fort Lauderdale, FL 33304
(954) 571-1111

FIGURE 1 (SHEET 2 OF 2)
BORING LOCATION PLAN
BY: JAK, LITS REV. OVER W&E BY: JAK, LITS
NORTHWEST CORRECTOR PROJECT
GODDARD COUNTY, GEORGIA
WILLIAMS PROJECT No. AT-171-0420210

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. BR-14	
Location: Cobb County, Georgia						Sheet 1 of 1	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 1	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 949.45		Station: ST 243+68, 44' Rt. of BL	
Drilling Equipment: CME550/MACTEC				Drilling Method: HSA-Auto Hammer			
Core Boxes: NA		Samples: 7		Overburden (ft): 24		Rock (ft): NA	
				Total Depth (ft): 24.0			
Logged By: PT				Date Drilled: 10/13/09			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					TOPSOIL - 2 inches	949.5		10
		SS			FILL: Loose gray and reddish brown silty medium to fine SAND with rock fragments (micaceous)			14
5		SS			RESIDUUM: Medium dense gray and brown silty medium to fine SAND (micaceous)	945		50/5"
		SS						98/10"
10		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray silty medium to fine SAND	940		50/2"
		SS				935		50/5"
15		SS						
		SS				930		50/2"
20		SS						
		SS						50/5"
					Boring was terminated at 24 feet below the existing ground surface.			
					No ground water was encountered at the time of boring.			

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing
---	---	--

RW - Rotary Wash RC - Rock Core	Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">BR-14</div>
------------------------------------	---

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-42	
Location: Cobb County, Georgia						Sheet 1 of 1	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 2	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 945.16		Station: ST 244+81, 46' Rt. of BL	
Drilling Equipment: CME 550/Gable				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 7		Overburden (ft): 21		Rock (ft): NA	
				Total Depth (ft): 21.0			
Logged By: CO				Date Drilled: 10/19/09			

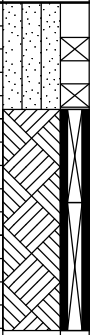
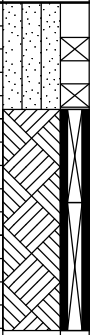
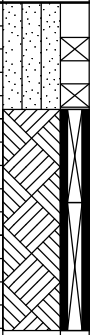
VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					RESIDUUM: Medium dense, dense and very dense brown and white silty medium to fine SAND with rock fragments (micaceous)	945.2		
5		SS			- very dense layer			62
		SS						23
		SS						50/1"
10		SS						38
		SS						
15		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown and white silty medium to fine SAND with rock fragments	930		80/9"
		SS						50/3"
20		SS				925		50/0"
					Auger refusal was encountered at 21 feet below the existing ground surface.			
					No ground water was encountered at the time of boring completion.			
					This boring was performed 10 feet north of the original location. Two offset borings were performed within 10 foot radius of this boring location. The borings encountered auger refusal between 6 to 9.5 feet below the existing ground surface.			
					Boring caved in to 14.3 feet below the existing ground surface 24 hours after boring completion.			

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing
---	---	--

RW - Rotary Wash RC - Rock Core	Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-42</div>
------------------------------------	--

[illegible]

SPTN 171-3463BFI.GPJ 10/27/09

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-44																																																																																																						
Location: Cobb County, Georgia						Sheet 1 of 1																																																																																																						
Project Number: 171-3463BF13; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 4																																																																																																						
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 942.03		Station: ST 247+10, 20' Rt of BL																																																																																																						
Drilling Equipment: CME 550/Gable						Drilling Method: HSA Auto Hammer																																																																																																						
Core Boxes: 1		Samples: 2		Overburden (ft): 4.6		Rock (ft): 9.5		Total Depth (ft): 14.1																																																																																																				
Logged By: MT/MG/PT						Date Drilled: 9/25/09																																																																																																						
<table border="1"> <thead> <tr> <th rowspan="2">VERTICAL DEPTH (ft)</th> <th rowspan="2">GRAPHIC LOG</th> <th rowspan="2">SAMPLE TYPE</th> <th rowspan="2">REC%</th> <th rowspan="2">RQD %</th> <th rowspan="2">MATERIAL DESCRIPTION</th> <th rowspan="2">ELEVATION (feet)</th> <th colspan="8">STANDARD PENETRATION TEST DATA (blows/foot)</th> <th rowspan="2">N-VALUE</th> </tr> <tr> <th>5</th> <th>10</th> <th>20</th> <th>40</th> <th>60</th> <th>80</th> </tr> </thead> <tbody> <tr> <td rowspan="4">5</td> <td rowspan="4"></td> <td>SS</td> <td></td> <td></td> <td rowspan="2">RESIDUUM: Dense to very dense reddish brown, tan, gray, and white silty medium to fine SAND with rock fragments SM</td> <td>942.0</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td></td> </tr> <tr> <td>SS</td> <td></td> <td></td> <td></td> <td>940</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td>44</td> </tr> <tr> <td>RC</td> <td>79</td> <td>56</td> <td rowspan="2">ROCK CORE: Gray and white GNEISS 4.6'-8.6': Very hard to medium hard with soft zones 8.6'-14.1': Hard to medium hard with soft zones</td> <td>935</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td rowspan="2">57</td> </tr> <tr> <td>RC</td> <td>78</td> <td>60</td> <td>930</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="6"> <p>Auger refusal was encountered 4.6 feet below the existing ground ground surface.</p> <p>Coring was terminated at 14.1 feet below the existing ground surface.</p> <p>No ground water was encountered at the time of boring completion.</p> <p>An offset boring was performed 5 feet east of the original location and auger refusal was encountered at 5 feet below the existing ground surface.</p> </td> <td colspan="8"></td> <td></td> </tr> </tbody> </table>												VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)								N-VALUE	5	10	20	40	60	80	5		SS			RESIDUUM: Dense to very dense reddish brown, tan, gray, and white silty medium to fine SAND with rock fragments SM	942.0											SS				940										44	RC	79	56	ROCK CORE: Gray and white GNEISS 4.6'-8.6': Very hard to medium hard with soft zones 8.6'-14.1': Hard to medium hard with soft zones	935										57	RC	78	60	930										<p>Auger refusal was encountered 4.6 feet below the existing ground ground surface.</p> <p>Coring was terminated at 14.1 feet below the existing ground surface.</p> <p>No ground water was encountered at the time of boring completion.</p> <p>An offset boring was performed 5 feet east of the original location and auger refusal was encountered at 5 feet below the existing ground surface.</p>														
VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)												N-VALUE																																																																																									
							5	10	20	40	60	80																																																																																																
5		SS			RESIDUUM: Dense to very dense reddish brown, tan, gray, and white silty medium to fine SAND with rock fragments SM	942.0																																																																																																						
		SS					940										44																																																																																											
		RC	79	56	ROCK CORE: Gray and white GNEISS 4.6'-8.6': Very hard to medium hard with soft zones 8.6'-14.1': Hard to medium hard with soft zones	935										57																																																																																												
		RC	78	60		930																																																																																																						
<p>Auger refusal was encountered 4.6 feet below the existing ground ground surface.</p> <p>Coring was terminated at 14.1 feet below the existing ground surface.</p> <p>No ground water was encountered at the time of boring completion.</p> <p>An offset boring was performed 5 feet east of the original location and auger refusal was encountered at 5 feet below the existing ground surface.</p>																																																																																																												
SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube						DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing						Hole No. B-44																																																																																																

SPTN 171-3463BFI.GPJ 10/27/09

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-45	
Location: Cobb County, Georgia						Sheet 1 of 1	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 5	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 931.67		Station: ST 248+48, 18' Rt of BL	
Drilling Equipment: CME 550/Gable				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 11		Overburden (ft): 45.5		Rock (ft): NA	
Total Depth (ft): 45.5							
Logged By: MT/MG				Date Drilled: 9/25/09			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					FILL: Loose and medium dense dark brown silty medium to fine SAND with root and rock fragments (slightly micaceous)	931.7		
5		SS				930		17
		SS				925		6
		SS				925		19
10		SS				920		7
		SS			RESIDUUM: Very dense dark brown, black and tan silty medium to fine SAND (micaceous)	920		
15		SS			Very dense to medium dense gray, white, tan and dark brown silty fine SAND	915		57
		SS				915		
20		SS				910		48
		SS				905		
25		SS				905		11
		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray, white, and dark brown silty medium to fine SAND	900		
30		SS				900		50/4"
		SS				895		50/5"
35		SS				895		
		SS				890		50/3"
40		SS				890		
		SS			Auger refusal was encountered at 45.5 feet below the existing ground surface.			50/1"
45		SS			Ground water was encountered at 29 feet below the existing ground surface at the time of the boring completion.			

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core
---	---	--

Hole No. **B-45**

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-46	
Location: Cobb County, Georgia						Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 6	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 904.54		Station: ST 249+80, BL	
Drilling Equipment: CME 550/MACTEC				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 13		Overburden (ft): 49.5		Rock (ft): NA	
Logged By: CO				Date Drilled: 10/8/09			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					FILL: Loose reddish brown silty medium to fine SAND (micaceous)	904.5		
5		SS				900		10
		SS				895		9
		SS			RESIDUUM: Medium dense brown, white and tan silty medium to fine SAND (micaceous)	890		19
10		SS			Loose reddish brown and black silty medium to fine SAND (slightly micaceous)	885		6
		SS				890		15
15		SS			Loose and medium dense brown, black and tan silty medium to fine SAND (micaceous)	885		7
20		SS				880		9
25		SS				875		19
30		SS				870		13
35		SS				865		50/3"
40		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense white, brown and gray silty medium to fine SAND (micaceous)	860		50/2"
45		SS						50/1"
		SS						50/0.5"
Auger refusal was encountered at 49.5 feet below the existing ground surface.								

Continued Next Page	
SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8" NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core
Hole No. B-46	

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy							HOLE No. B-46 Sheet 2 of 2								
Location: Cobb County, Georgia							Location: BENT - 6								
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130															
VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)								N-VALUE
					(Continued)		5	10	20	40	60	80			
					Ground water was encountered at 8.4 feet below the existing ground surface at the time of boring and at 5.5 feet below the existing ground surface 24 hours after boring completion.										
SAMPLER TYPE					DRILLING METHOD					Hole No.					
SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"					NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube					RW - Rotary Wash RC - Rock Core				B-46	

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-47	
Location: Cobb County, Georgia						Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 7	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 893.12		Station: ST 251+20, 18' Lt. of BL	
Drilling Equipment: CME 550/MACTEC				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 15		Overburden (ft): 63.5		Rock (ft): NA	
Total Depth (ft): 63.5							
Logged By: CO				Date Drilled: 10/8/09			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					FILL: Medium dense to very loose brown silty medium to fine SAND (micaceous)	893.1		
5		SS				890		11
		SS				885		3
		SS			Loose brown, tan and gray silty medium to fine SAND with root fragments (micaceous)	885		5
10		SS			RESIDUUM: Medium dense black, reddish brown and tan silty medium to fine SAND with rock fragments	880		30
		SS			Medium dense brown and tan silty medium to fine SAND (micaceous)	880		11
15		SS				875		17
20		SS				870		22
25		SS				865		19
30		SS				860		11
35		SS				855		
40		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense brown, white and gray silty medium to fine SAND (micaceous)	850		50/4.5"
45		SS				845		50/1"
50		SS				840		50/4"
55		SS						91/9"

Continued Next Page		DRILLING METHOD		Hole No. B-47
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

SPTN 171-3463BFI.GPJ 10/27/09

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-48	
Location: Cobb County, Georgia						Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 8	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 894.13		Station: ST 252+40, 8' Rt. of BL	
Drilling Equipment: CME 550/MACTEC				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 17		Overburden (ft): 77		Rock (ft): NA	
				Total Depth (ft): 77.0			
Logged By: CO				Date Drilled: 10/9/09			

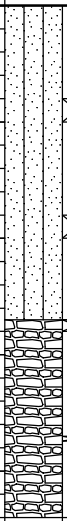
VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					FILL: Very loose, loose and medium dense brown and tan silty medium to fine SAND (micaceous)	894.1		
5		SS						4
		SS				890		12
		SS						6
10		SS				885		4
		SS						
15		SS			Very loose gray and tan silty medium to fine SAND with wood and rock fragments (micaceous)	880		3
		SS						
20		SS			RESIDUUM: Very loose to medium dense white, brown and black silty medium to fine SAND (micaceous)	875		4
		SS						
25		SS				870		15
		SS						
30		SS			Dense white, brown and black silty coarse to fine SAND (micaceous)	865		38
		SS						
35		SS			Medium dense, dense and very dense brown, black and white silty medium to fine SAND (micaceous) - with rock fragments	860		11
		SS						
40		SS				855		53
		SS						
45		SS				850		51
		SS						
50		SS				845		31
		SS						
55		SS				840		36

Continued Next Page		DRILLING METHOD		Hole No. B-48
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

Project: **Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy**Location: **Cobb County, Georgia**Project Number: **171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130****HOLE No. B-48**

Sheet 2 of 2

Location: **BENT - 8**

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA					N-VALUE	
							(blows/foot)						
					(Continued)		5	10	20	40	60	80	
60		SS			Dense and very dense brown, black and white silty medium to fine SAND (micaceous)	835							97
65		SS			-with rock fragments	830							45
70		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense black, white and brown silty medium to fine SAND (micaceous)	825							50/6"
75		SS				820							50/2.5"
					Boring was terminated at 77 feet below the existing ground surface.								
					Ground water was encountered at 15 feet below the existing ground surface at the time of boring and at 11 feet below the existing ground surface 24 hours after boring completion.								

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-49	
Location: Cobb County, Georgia						Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 9	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 903.15		Station: ST 254+20, 14' Rt. of BL	
Drilling Equipment: CME 550/MACTEC				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 17		Overburden (ft): 74		Rock (ft): NA	
Total Depth (ft): 74.0							
Logged By: PT				Date Drilled: 10/8/09			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					TOPSOIL - 2 inches	903.2		
					FILL: Very loose to dense brown and reddish brown silty medium to fine SAND			4
5		SS			- with rock fragments			33
		SS			ALLUVIUM: Loose gray and tan clayey medium to fine SAND			9
10		SS			RESIDUUM: Loose gray and brown silty medium to fine SAND (micaceous)			8
15		SS						8
20		SS			Loose reddish brown and gray silty medium to fine SAND (slightly micaceous)			9
25		SS						9
30		SS			Dense to medium dense gray and brown silty medium to fine SAND (micaceous)			38
35		SS						16
40		SS			Medium dense gray and white silty medium to fine SAND with quartz fragments			22
45		SS			Dense and very dense gray and brown silty medium to fine SAND with quartz fragments			35
50		SS						53
55		SS						33

Continued Next Page		DRILLING METHOD		Hole No. B-49
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy							HOLE No. B-49													
Location: Cobb County, Georgia							Sheet 2 of 2													
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130							Location: BENT - 9													
VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)								N-VALUE					
													5	10	20	40	60	80		
60		SS			PARTIALLY WEATHERED ROCK: PWR Sampled as very dense gray silty medium to fine SAND	845									50/5.5"					
65		SS				840									50/5.5"					
70		SS			RESIDUUM: Dense gray and brown silty medium to fine SAND (micaceous) SM	835									46					
		SS			PARTIALLY WEATHERED ROCK: PWR Sampled as very dense gray silty medium to fine SAND Auger refusal was encountered at 74 feet below the existing ground surface. Ground water was encountered at 12 feet below the existing ground surface at the time of boring and at 4 feet below the existing ground surface 24 hours after boring completion.	830									50/0"					
SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"							DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing							Hole No. B-49						

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-50	
Location: Cobb County, Georgia						Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 10	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 906.84		Station: ST 255+26, 19' Rt. of BL	
Drilling Equipment: CME 550/MACTEC				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 14		Overburden (ft): 64		Rock (ft): NA	
				Total Depth (ft): 64.0			
Logged By: PT				Date Drilled: 10/8/09			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					TOPSOIL - 2 inches	906.8		
					FILL: Medium dense gray and brown silty medium to fine SAND (micaceous) - with boulders	905		10
5		SS						50/5"
		SS				900		17
10		SS						12
		SS				895		
15		SS			RESIDUUM: Medium dense gray and white silty medium to fine SAND (slightly micaceous)	890		12
		SS			Loose to medium dense gray and tan silty medium to fine SAND (slightly micaceous)	885		10
20		SS				880		9
25		SS				875		17
30		SS			- with rock fragments	870		16
35		SS			Medium dense gray and brown silty medium to fine SAND (micaceous)	865		24
40		SS				860		49
45		SS			Dense gray, white and brown silty medium to fine SAND with rock fragments (slightly micaceous)	855		77/10"
50		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray and brown silty medium to fine SAND			50/5.5"
55		SS						

Continued Next Page

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"		NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing		RW - Rotary Wash RC - Rock Core		Hole No. <div style="font-size: 1.2em; font-weight: bold;">B-50</div>
---	--	---	--	--	--	------------------------------------	--	--

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy Location: Cobb County, Georgia Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						HOLE No. B-50 Sheet 2 of 2 Location: BENT - 10		
VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION (Continued)	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
60		SS			RESIDUUM: Medium dense gray and brown silty medium to fine SAND (micaceous) SM PARTIALLY WEATHERED ROCK: Sampled as very dense gray and brown silty medium to fine SAND PWR Auger refusal was encountered at 64 feet below the existing ground surface. Ground water was encountered at 13 feet below the existing ground surface at the time of boring. Boring caved in to 9 feet below the existing ground surface 24 hours after boring completion.	850 845	5 10 20 40 60 80 	29
SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"						DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing		RW - Rotary Wash RC - Rock Core Hole No. B-50

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-51	
Location: Cobb County, Georgia						Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 11	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 911.30		Station: ST 256+85, 21' Rt. of BL	
Drilling Equipment: CME 550/MACTEC				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 13		Overburden (ft): 55		Rock (ft): NA	
				Total Depth (ft): 55.0			
Logged By: PT				Date Drilled: 10/8/09			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
	X	SS			TOPSOIL - 2 inches	911.3		
					FILL: Loose gray and brown silty medium to fine SAND with rock fragments (micaceous)	910		10
5	X	SS						7
	X	SS			RESIDUUM: Loose gray and tan silty medium to fine SAND (slightly micaceous)	905		15
10	X	SS			Medium dense to dense gray and brown silty medium to fine SAND with rock fragments (micaceous)	900		12
15	X	SS				895		34
20	X	SS			Medium dense gray and brown silty medium to fine SAND	890		16
25	X	SS				885		11
30	X	SS			- with rock fragments	880		20
35	X	SS			Medium dense to dense tan and brown silty medium to fine SAND with rock fragments	875		30
40	X	SS				870		34
45	X	SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray and brown silty medium to fine SAND	865		50/1"
50	X	SS				860		50/5"
55								

Continued Next Page

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"		NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing		RW - Rotary Wash RC - Rock Core		Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-51</div>
---	--	---	--	--	--	------------------------------------	--	--

SPTN 171-3463BFI.GPJ 10/27/09

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-52	
Location: Cobb County, Georgia						Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 12	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 924.03		Station: ST 258+20, 20' Rt. of BL	
Drilling Equipment: CME 550/MACTEC				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 13		Overburden (ft): 54		Rock (ft): NA	
				Total Depth (ft): 54.0			
Logged By: CO				Date Drilled: 9/30/09			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					RESIDUUM: Loose white to brown and tan silty medium to fine SAND (micaceous)	924.0		
5		SS						8
		SS						8
		SS						7
10		SS						8
		SS						
15		SS						6
		SS						
20		SS						9
		SS						
25		SS			Medium dense and very dense dark brown, white and tan silty medium to fine SAND (micaceous)	900		19
		SS						
30		SS						27
		SS						
35		SS						78
		SS						
40		SS						25
		SS						
45		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense black, brown and white silty medium to fine SAND with rock fragments (micaceous)	880		50/4"
		SS						
50		SS						50/1"
		SS						50/0.25"

Continued Next Page		DRILLING METHOD		Hole No. B-52
SS - Split Spoon	NX - Rock Core, 2-1/8"	HSA - Hollow Stem Auger	RW - Rotary Wash	
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core	
NQ - Rock Core, 1-7/8"	CT - Continuous Tube	DC - Driving Casing		

SPTN 171-3463BFI.GPJ 10/27/09

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-53	
Location: Cobb County, Georgia						Sheet 1 of 1	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 13	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 926.66		Station: ST 259+60, 17' Rt. of BL	
Drilling Equipment: CME 550/MACTEC				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 12		Overburden (ft): 45		Rock (ft): NA	
				Total Depth (ft): 45.0			
Logged By: PT				Date Drilled: 10/8/09			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					TOPSOIL - 2 inches	926.7		5
					FILL: Loose gray and brown silty medium to fine SAND with root and rock fragments (micaceous)	925		37
5		SS			RESIDUUM: Dense gray and white silty medium to fine SAND (slightly micaceous)	920		40
10		SS				915		50
15		SS			Medium dense gray and brown silty medium to fine SAND (micaceous)	910		15
20		SS				905		21
25		SS				900		21
30		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray and white silty medium to fine SAND with rock fragments	895		50/5.5"
35		SS			RESIDUUM: Medium dense gray and brown silty medium to fine SAND with quartz fragments (micaceous)	890		54
40		SS			PARTIALLY WEATHERED ROCK: Sampled as very dense gray and white silty medium to fine SAND	885		38
45		SS			Auger refusal was encountered at 45 feet below the existing ground surface.			50/1"
					Ground water was encountered at 19 feet below the existing ground surface at the time of boring and at 15 feet below the existing ground surface 24 hours after boring completion.			50/0"

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. B-53
---	--	--

Project: Bridge 4: I-75 Reversible Lanes Over Windy Ridge Pkwy						HOLE No. B-54	
Location: Cobb County, Georgia						Sheet 1 of 2	
Project Number: 171-3463BFI3; GDOT Proj. # : NH000-0073-03(242); PI #: 714130						Location: BENT - 14	
Azimuth: --		Angle from Horizontal: 90		Surface Elevation (ft): 938.76		Station: ST 261+09, 13' Rt. of BL	
Drilling Equipment: CME 550/MACTEC				Drilling Method: HSA Auto Hammer			
Core Boxes: NA		Samples: 16		Overburden (ft): 65		Rock (ft): NA	
				Total Depth (ft): 65.0			
Logged By: PT				Date Drilled: 10/6/09			

VERTICAL DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE	REC%	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST DATA (blows/foot)	N-VALUE
					FILL: Loose reddish brown silty medium to fine SAND with rock fragments	938.8		10
		SS						8
5		SS			RESIDUUM: Loose and medium dense reddish brown and gray silty medium to fine SAND (slightly micaceous)	935		11
		SS						8
10		SS				930		7
		ST						
15		SS			Medium dense gray silty medium to fine SAND with rock fragments (micaceous)	925		11
20		SS				920		24
25		SS			Loose and medium dense reddish brown, gray and white silty medium to fine SAND (slightly micaceous)	915		11
30		SS				910		10
35		SS				905		10
40		SS				900		28
45		SS			Very dense to medium dense gray and brown silty medium to fine SAND (slightly micaceous)	895		66
50		SS				890		26
55		SS				885		80/7"
Continued Next Page								

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"		NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing		RW - Rotary Wash RC - Rock Core		Hole No. <div style="font-size: 1.2em; font-weight: bold;">B-54</div>
---	--	---	--	--	--	------------------------------------	--	--

SPTN 171-3463BFI.GPJ 10/27/09